



# WETLANDS PERMIT APPLICATION

## Water Division/ Wetlands Bureau Land Resources Management

Check the status of your application: [www.des.nh.gov/onestop](http://www.des.nh.gov/onestop)



RSA/Rule: [RSA 482-A/ Env-Wt 100-900](#)

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No. _____
			Check No. _____
			Amount _____
			Initials _____

**1. REVIEW TIME:** Indicate your Review Time below. To determine review time, refer to [Guidance Document A](#) for instructions.

☒ Standard Review (Minimum, Minor or Major Impact)

☐ Expedited Review (Minimum Impact only)

**2. MITIGATION REQUIREMENT:**

If mitigation is required a Mitigation-Pre Application meeting must occur prior to submitting this Wetlands Permit Application. To determine if Mitigation is Required, please refer to the [Determine if Mitigation is Required Frequently Asked Question](#).

Mitigation Pre-Application Meeting Date: Month: \_\_\_\_ Day: \_\_\_\_ Year: \_\_\_\_

☒ N/A - Mitigation is not required

**3. PROJECT LOCATION:**

Separate wetland permit applications must be submitted for each municipality that wetland impacts occur within.

ADDRESS: **NH Route 12 and NH Route 119 intersection**

TOWN/CITY: **Fitzwilliam**

TAX MAP:

BLOCK:

LOT:

UNIT:

USGS TOPO MAP WATERBODY NAME:

☒ NA

STREAM WATERSHED SIZE:

☒ NA

LOCATION COORDINATES (If known): 858,442.275 101,782.166 to 856,369.359 103,643.277 Feet ☐ Latitude/Longitude ☐ UTM ☒ State Plane

**4. PROJECT DESCRIPTION:**

Provide a brief description of the project outlining the scope of work. Attach additional sheets as needed to provide a detailed explanation of your project. DO NOT reply "See Attached" in the space provided below.

**Proposed work will include step box widening, construction of speed reduction medians, installation of a two way left turn lane along NH Route 12, and minor pipe and headwall construction.**

**5. SHORELINE FRONTAGE:**

☒ NA This does not have shoreline frontage.

SHORELINE FRONTAGE:

Shoreline frontage is calculated by determining the average of the distances of the actual natural navigable shoreline frontage and a straight line drawn between the property lines, both of which are measured at the normal high water line.

**6. RELATED NHDES LAND RESOURCES MANAGEMENT PERMIT APPLICATIONS ASSOCIATED WITH THIS PROJECT:**

Please indicate if any of the following permit applications are required and, if required, the status of the application.

To determine if other Land Resources Management Permits are required, refer to the [Land Resources Management Web Page](#).

Permit Type	Permit Required	File Number	Permit Application Status
Alteration of Terrain Permit Per RSA 485-A:17	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED
Individual Sewerage Disposal per RSA 485-A:2	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED
Subdivision Approval Per RSA 485-A	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED
Shoreland Permit Per RSA 483-B	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	_____	<input type="checkbox"/> APPROVED <input type="checkbox"/> PENDING <input type="checkbox"/> DENIED

**7. NATURAL HERITAGE BUREAU & DESIGNATED RIVERS:**

See the Instructions & Required Attachments document for instructions to complete a & b below.

a. Natural Heritage Bureau File ID: NHB **18** - **1461**

b. ☐ [Designated River](#) the project is in ¼ miles of: \_\_\_\_\_; and  
date a copy of the application was sent to the [Local River Management Advisory Committee](#): Month: \_\_\_\_ Day: \_\_\_\_ Year: \_\_\_\_

☒ N/A

[lrn@des.nh.gov](mailto:lrn@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

**8. APPLICANT INFORMATION (Desired permit holder)**LAST NAME, FIRST NAME, M.I.: **New Hampshire Department of Transportation (Michael J. Dugas, P.E.)**TRUST / COMPANY NAME: **NHDOT**MAILING ADDRESS: **7 Hazen Drive**TOWN/CITY: **Concord**STATE: **NH**ZIP CODE: **03301**EMAIL or FAX: **Michael.Dugas@dot.nh.gov**PHONE: **603-271-2604**ELECTRONIC COMMUNICATION: By initialing here: MD, I hereby authorize NHDES to communicate all matters relative to this application electronically.**9. PROPERTY OWNER INFORMATION (If different than applicant)**

LAST NAME, FIRST NAME, M.I.:

TRUST / COMPANY NAME:

MAILING ADDRESS:

TOWN/CITY:

STATE:

ZIP CODE:

EMAIL or FAX:

PHONE:

ELECTRONIC COMMUNICATION: By initialing here \_\_\_\_\_, I hereby authorize NHDES to communicate all matters relative to this application electronically.

**10. AUTHORIZED AGENT INFORMATION**

LAST NAME, FIRST NAME, M.I.:

COMPANY NAME:

MAILING ADDRESS:

TOWN/CITY:

STATE:

ZIP CODE:

EMAIL or FAX:

PHONE:

ELECTRONIC COMMUNICATION: By initialing here \_\_\_\_\_, I hereby authorize NHDES to communicate all matters relative to this application electronically.

**11. PROPERTY OWNER SIGNATURE:**

See the Instructions &amp; Required Attachments document for clarification of the below statements

By signing the application, I am certifying that:

1. I authorize the applicant and/or agent indicated on this form to act in my behalf in the processing of this application, and to furnish upon request, supplemental information in support of this permit application.
2. I have reviewed and submitted information & attachments outlined in the Instructions and Required Attachment document.
3. All abutters have been identified in accordance with RSA 482-A:3, I and Env-Wt 100-900.
4. I have read and provided the required information outlined in Env-Wt 302.04 for the applicable project type.
5. I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
6. Any structure that I am proposing to repair/replace was either previously permitted by the Wetlands Bureau or would be considered grandfathered per Env-Wt 101.47.
7. I have submitted a Request for Project Review (RPR) Form ([www.nh.gov/nhdhr/review](http://www.nh.gov/nhdhr/review)) to the NH State Historic Preservation Officer (SHPO) at the NH Division of Historical Resources to identify the presence of historical/ archeological resources while coordinating with the lead federal agency for NHPA 106 compliance.
8. I authorize NHDES and the municipal conservation commission to inspect the site of the proposed project.
9. I have reviewed the information being submitted and that to the best of my knowledge the information is true and accurate.
10. I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.
11. I am aware that the work I am proposing may require additional state, local or federal permits which I am responsible for obtaining.
12. The mailing addresses I have provided are up to date and appropriate for receipt of NHDES correspondence. NHDES will not forward returned mail.



Property Owner Signature

**MICHAEL J. DUGAS**

Print name legibly

**6/1/2018**

Date

[lrn@des.nh.gov](mailto:lrn@des.nh.gov) or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

[www.des.nh.gov](http://www.des.nh.gov)

## MUNICIPAL SIGNATURES

### 12. CONSERVATION COMMISSION SIGNATURE

The signature below certifies that the municipal conservation commission has reviewed this application, and:

1. Waives its right to intervene per RSA 482-A:11;
2. Believes that the application and submitted plans accurately represent the proposed project; and
3. Has no objection to permitting the proposed work.

	Print name legibly	Date
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#### DIRECTIONS FOR CONSERVATION COMMISSION

1. Expedited review ONLY requires that the conservation commission's signature is obtained in the space above.
2. Expedited review requires the Conservation Commission signature be obtained **prior** to the submittal of the original application to the Town/City Clerk for signature.
3. The Conservation Commission may refuse to sign. If the Conservation Commission does not sign this statement for any reason, the application is not eligible for expedited review and the application will be reviewed in the standard review time frame.

### 13. TOWN / CITY CLERK SIGNATURE

As required by Chapter 482-A:3 (amended 2014), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

	Print name legibly	Town/City	Date
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#### DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3, I

1. For applications where "Expedited Review" is checked on page 1, if the Conservation Commission signature is not present, NHDES will accept the permit application, but it will NOT receive the expedited review time.
2. IMMEDIATELY sign the original application form and four copies in the signature space provided above;
3. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
4. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board; and
5. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

#### DIRECTIONS FOR APPLICANT:

1. Submit the single, original permit application form bearing the signature of the Town/ City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery.

[lrn@des.nh.gov](mailto:lrn@des.nh.gov) or (603) 271-2147

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**14. IMPACT AREA:**

For each jurisdictional area that will be/has been impacted, provide square feet and, if applicable, linear feet of impact

Permanent: impacts that will remain after the project is complete.

Temporary: impacts not intended to remain (and will be restored to pre-construction conditions) after the project is complete.

JURISDICTIONAL AREA	PERMANENT Sq. Ft. / Lin. Ft.	TEMPORARY Sq. Ft. / Lin. Ft.
Forested wetland	232 sf <input type="checkbox"/> ATF	311 sf <input type="checkbox"/> ATF
Scrub-shrub wetland	105 sf <input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Emergent wetland	833 sf <input type="checkbox"/> ATF	13 sf <input type="checkbox"/> ATF
Wet meadow	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Intermittent stream	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Perennial Stream / River	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Lake / Pond	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Bank - Intermittent stream	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Bank - Perennial stream / River	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Bank - Lake / Pond	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Tidal water	/ <input type="checkbox"/> ATF	/ <input type="checkbox"/> ATF
Salt marsh	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Sand dune	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Prime wetland	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Prime wetland buffer	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Undeveloped Tidal Buffer Zone (TBZ)	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Previously-developed upland in TBZ	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - Lake / Pond	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - River	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Docking - Tidal Water	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
Vernal Pool	<input type="checkbox"/> ATF	<input type="checkbox"/> ATF
<b>TOTAL</b>	<b>1170 sf / 0 lf</b>	<b>324 sf / 0 lf</b>

**15. APPLICATION FEE:** See the Instructions & Required Attachments document for further instruction

☐ Minimum Impact Fee: Flat fee of \$ 200

☐ Minor or Major Impact Fee: Calculate using the below table below

Permanent and Temporary (non-docking) 1494 sq. ft. X \$0.20 = \$ 298.80

Temporary (seasonal) docking structure: \_\_\_\_\_ sq. ft. X \$1.00 = \$

Permanent docking structure: \_\_\_\_\_ sq. ft. X \$2.00 = \$

Projects proposing shoreline structures (including docks) add \$200 = \$

Total = \$ 298.80

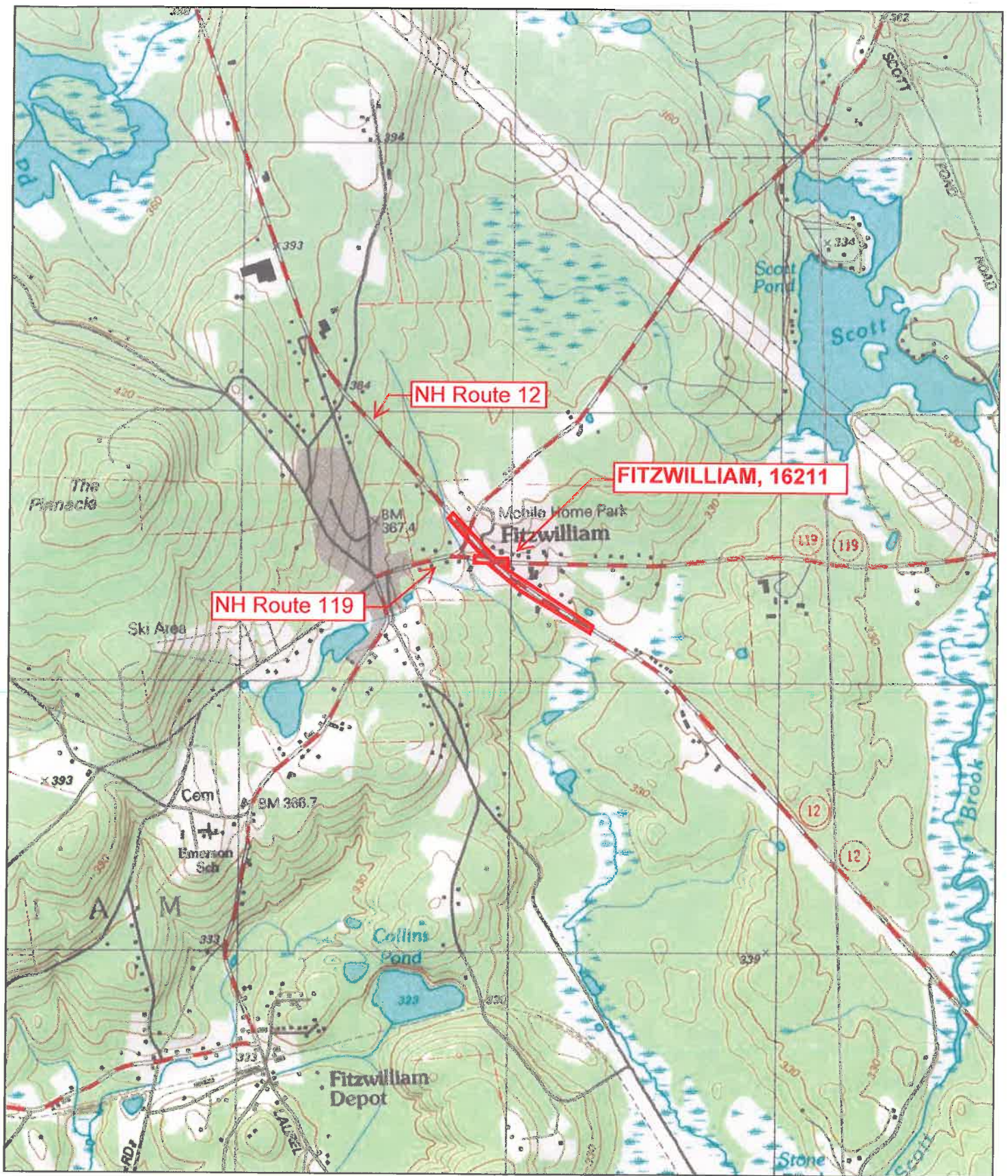
The Application Fee is the above calculated Total or \$200, whichever is greater = \$ 298.80

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0 3000 Ft

Map provided by MyTopo.com





**WETLANDS PERMIT APPLICATION – ATTACHMENT A**  
**MINOR AND MAJOR - 20 QUESTIONS**  
 Land Resources Management  
 Wetlands Bureau

Check the Status of your application: [www.des.nh.gov/onestop](http://www.des.nh.gov/onestop)



**RSA/ Rule:** RSA 482-A, Env-Wt 100-900

**Env-Wt 302.04 Requirements for Application Evaluation** - For any major or minor project, the applicant shall demonstrate by plan and example that the following factors have been considered in the project's design in assessing the impact of the proposed project to areas and environments under the department's jurisdiction. Respond with statements demonstrating:

**1. The need for the proposed impact.**

This project proposes to construct a two-way left turn lane and speed reduction medians along NH Route 12 at both the north and south approach to the intersection with NH Route 119. Step box widening will be completed in some sections where the pavement is being widened from existing condition. Due to the widening of the roadway, slope lines are also being adjusted and are pushed out from existing. This results in requiring culvert work at four locations, all wetland impacts are due to the culvert adjustments at these locations: STA 204+17 LT & RT, STA 208+19 LT & RT, STA 221+00 LT to STA 222+00 LT, and STA 225+46 LT.

**2. That the alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site.**

The following proposed drainage replacements are needed due to alterations to the roadway slopes, these drainage adjustments are adjacent to wetlands. Alternatives considered included no build and pipe extensions, no build was not an option as the new slopes would fill in over the existing crossings if left in place, pipe extensions were not the preferred alternatives because this would result in more wetland impacts.

**STA 204+17 LT and RT:** At the outlet, the existing mortar rubble masonry headwall will be removed and replaced with a taller concrete headwall to match the revised slope line. When installing the new headwall 4-feet of the existing concrete pipe will be removed and replaced to ensure a good connection. Stone fill will be placed at the outlet to minimize erosion at the outlet. At the inlet the culvert will be lengthened 8-feet, the existing mortar rubble masonry headwall will be removed, and new concrete headwall will be constructed so that the headwall will be outside the roadway clear zone and will not be a hazard to the travelling public.

**STA 208+19 LT and RT:** At the outlet, the existing mortar rubble masonry headwall will be removed and replaced with a taller concrete headwall to match the revised slope line. When installing the new headwall 4-ft of the existing concrete pipe will be removed and replaced to ensure a good connection. Stone fill will be placed at the outlet to minimize erosion. At the inlet the existing catch basin will be removed and replaced at a new location to match the slope lines. This relocation will result in a 4-ft extension of the pipe at the inlet.

**STA 221+00 LT to STA 222+00 LT:** Removing and replacing drive culvert due to slope changes. Construct catch basin at inlet to connect to 15" concrete pipe.

**STA 225+46 LT:** Pipe separation exists at the outlet. Remove existing mortar rubble masonry headwall at the outlet. Remove and replace 4-ft of concrete pipe. Construct concrete headwall at outlet.

[lm@des.nh.gov](mailto:lm@des.nh.gov) or (603) 271-2147

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3. The type and classification of the wetlands involved.

**There are no streams being impacted under this project. All four impacted crossings connect wetland to wetland.**

**Palustrine, Emergent, Persistent (PEM1)**

**Palustrine, Emergent, Persistent, Seasonally Flooded/Saturated (PEM1E)**

**Palustrine, Emergent, Nonpersistent (PEM2)**

**Palustrine, Forested, Broad-Leaved Deciduous (PFO1)**

**Palustrine, Scrub-Shrub, Broad-Leaved Deciduous (PSS1)**

**Riverine, Intermittent, Streambed, Rubble (R4SB2)**

4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters.

**The impacts associated with this project will not negatively effect nearby wetlands and surface waters. Drainage patterns will be maintained and it is not expected that hydrology will change.**

5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area.

**The impacted and nearby wetlands are not rare or uncommon in NH. Riverine and Palustrine wetlands are common in New Hampshire.**

6. The surface area of the wetlands that will be impacted.

**Palustrine - 1170 s.f. permanent; 324 s.f. temporary**

7. The impact on plants, fish and wildlife including, but not limited to:

- a. Rare, special concern species;
- b. State and federally listed threatened and endangered species;
- c. Species at the extremities of their ranges;
- d. Migratory fish and wildlife;
- e. Exemplary natural communities identified by the DRED-NHB; and
- f. Vernal pools.

**a.) No rare or special concern species were identified within the proposed project area.**

**b.) Through NH DRED-NHB Data Check tool, no State or Federally listed threatened and endangered species were identified. Through USF&W services IPAC tool, there was a hit for the Northern Long Eared Bat (NLEB) for the project. Tree clearing will be limited to winter time clearing.**

**c.) There are no species known to be at the extremities of their ranges located in the project area or the surrounding areas.**

**d.) There are no migratory fish or wildlife identified within the project area.**

**e.) The NHB review revealed no records of exemplary natural communities within the proposed project area.**

**f.) There were no vernal pools identified and/or delineated in the proposed project area.**

8. The impact of the proposed project on public commerce, navigation and recreation.

**These four improved crossings under NH Route 12 will continue to be maintained and public commerce and mobility will continue. All culvert work will be completed with temporary lane and shoulder closures facilitated by flaggers.**

9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake, the applicant shall be required to indicate the type of material to be used and the effect of the construction of the wall on the view of other users of the lake.

**This project does not interfere with the aesthetic interest of the general public. The work is along and within an existing transportation corridor and does not involve the application of atypical construction methods/techniques.**



10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel, the applicant shall be required to document the extent to which the dock would block or interfere with the passage through this area.

**As noted in #8, only minor impacts. There will be two-way alternating one-lane traffic during low volume periods to complete construction of the raised concrete median islands and to complete step box widening. No ROW easements are permanent acquisitions are required to complete the project.**

11. The impact upon abutting owners pursuant to RSA 482-A:11, II. For example, if an applicant is proposing to rip-rap a stream, the applicant shall be required to document the effect of such work on upstream and downstream abutting properties.

**Work is being completed at four crossing locations, three of which include work at the outlet end of the crossings. At these outlet locations small stone aprons with matting will be constructed to stabilize the slope and minimize stream erosion.**

12. The benefit of a project to the health, safety, and well being of the general public.

**The project will perpetuate the safety of NH Route 12 at this location by providing safer roadway slopes and headwall locations for the travelling public.**

13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands the applicant shall be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site.

**The proposed impacts to the four culvert locations will also not alter the current quantity and quality of the surface water or groundwater entering the system because the proposed work will not increase the amount of impervious surface within the project area. Best management practices will be used to prevent any adverse effect to water quality during construction.**

14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation.

**The design will not cause or increase flooding, erosion, or sedimentation. The existing drainage is in good condition and performing well, modifications are only required due to the roadway slopes being modified as part of the roadway work. Disturbed outlet slopes will be stabilized with geotextile material and stone; fill areas will receive humus and will be re-seeded.**

15. The extent to which a project that is located in surface waters reflects or redirects current or wave energy which might cause damage or hazards.

**All the current flow and water that is transported through this system will continue with/after the replacement. No new water sources will be introduced. There is not enough energy within these crossing areas to produce waves or for water to be redirected.**

16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owns only a portion of a wetland shall document the applicant's percentage of ownership of that wetland and the percentage of that ownership that would be impacted.

**N/A. The abutters would not be constructing a similar highway design project. There are no cumulative impacts expected from this culvert replacement project that would impact abutters. Design of this crossing minimizes adverse impacts while improving roadway safety.**

17. The impact of the proposed project on the values and functions of the total wetland or wetland complex.

**The proposed work was designed to minimize the impacts to wetlands to the maximum extent practicable. The remaining wetland systems will continue to serve the functions and values they do today, where they are primarily serving as roadside ditches.**



18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication.

**This project is not located in or near any of the following National Register of Natural Landmarks listed on the National Register: Lake Umbagog East Inlet and Floating Island, Pondicherry Wildlife Refuge, Franconia Notch, Nancy Brook Scenic Area, Heath Pond Bog, Madison Boulder, White Lake Pitch Pine Forest, Mount Monadnock, Rhododendron Natural Area, and Spruce Hole Bog.**

19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.

**This project is not located in or near any of the above mentioned protected areas.**

20. The degree to which a project redirects water from one watershed to another.

**This project will not redirect water from one watershed to another. See #15 for additional information.**

[irm@des.nh.gov](mailto:irm@des.nh.gov) or (603) 271-2147

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Additional comments

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[www.des.nh.gov](http://www.des.nh.gov)



## New Hampshire Natural Heritage Bureau

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**To:** Marc Laurin  
7 Hazen Drive  
Concord, NH 03301

**Date:** 5/10/2018

**From:** NH Natural Heritage Bureau

**Re:** Review by NH Natural Heritage Bureau of request dated 5/10/2018  
NHB File ID: NHB18-1461

Applicant: NHDOT

**Location:** Tax Map(s)/Lot(s):  
Fitzwilliam

**Project Description:** The reconstruction of the existing intersection of NH Route 12 with NH Route 119. The project will construct raised traffic islands on the NH 12 approaches to the intersections, requiring the lengthening of a culvert and minor slope impacts to wetlands.

The NH Natural Heritage database has been checked for records of rare species and exemplary natural communities near the area mapped below. The species considered include those listed as Threatened or Endangered by either the state of New Hampshire or the federal government. We currently have no recorded occurrences for sensitive species near this project area.

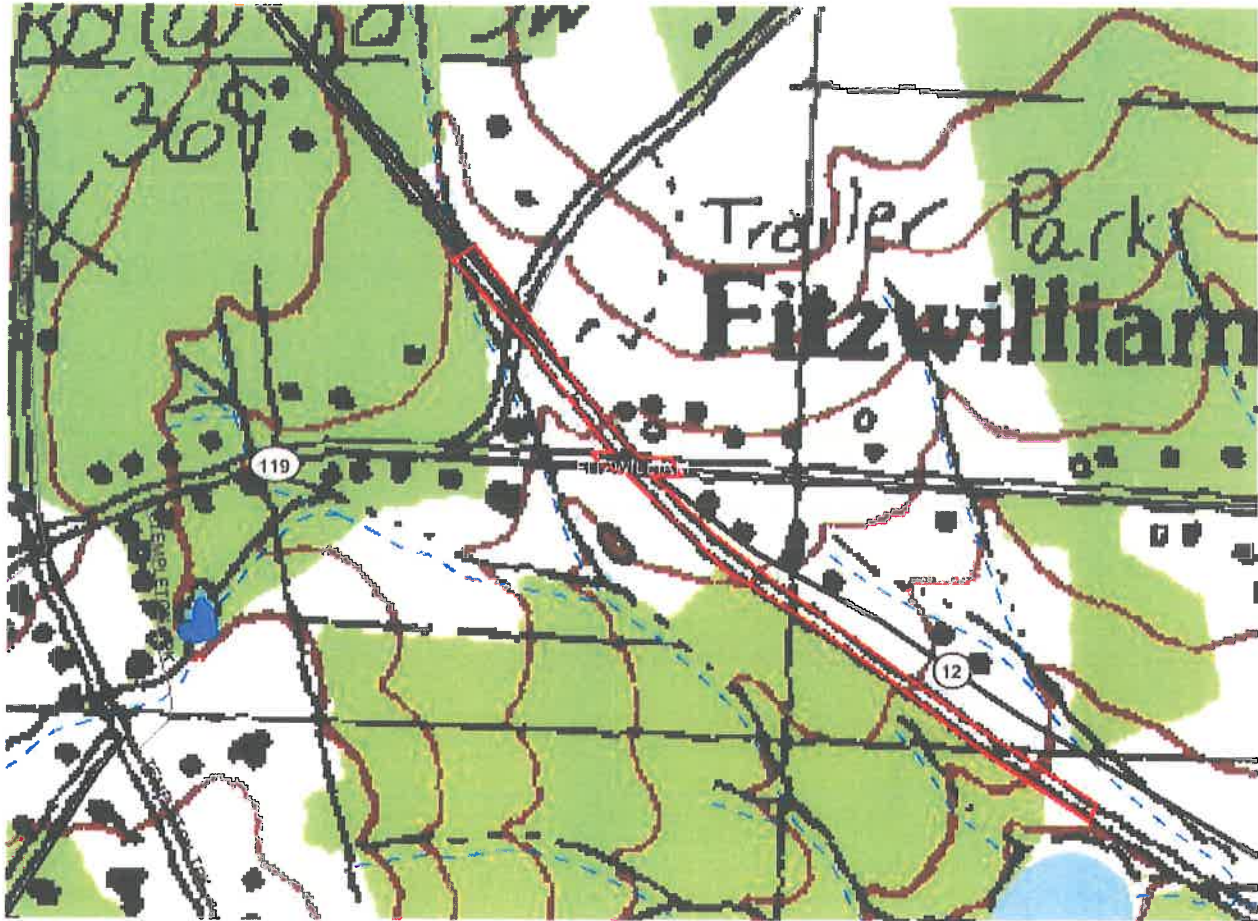
A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

This report is valid through 5/9/2019.





MAP OF PROJECT BOUNDARIES FOR NHB FILE ID: NHB18-1461





## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 COMMERCIAL STREET, SUITE 300  
CONCORD, NH 03301  
PHONE: (603)223-2541 FAX: (603)223-0104  
URL: [www.fws.gov/newengland](http://www.fws.gov/newengland)

Consultation Code: 05E1NE00-2017-SLI-0997

March 07, 2017

Event Code: 05E1NE00-2017-E-01833

Project Name: Fitzwilliam, 16211

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

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Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment





United States Department of Interior  
Fish and Wildlife Service

Project name: Fitzwilliam, 16211

## Official Species List

### Provided by:

New England Ecological Services Field Office

70 COMMERCIAL STREET, SUITE 300

CONCORD, NH 03301

(603) 223-2541

<http://www.fws.gov/newengland>

**Consultation Code:** 05E1NE00-2017-SLI-0997

**Event Code:** 05E1NE00-2017-E-01833

**Project Type:** TRANSPORTATION

**Project Name:** Fitzwilliam, 16211

**Project Description:** Reconfigure the NH Route 12 intersection with NH Route 119. This intersection has been identified as part of the Highway Safety Improvement Program as requiring improvements to increase safety of the intersection. The proposed improvements will implement traffic calming measures on NH 12 to reduce speeds near the intersection, which will include the construction of raised traffic islands on the NH 12 approaches to the intersection and the reconfiguration of lane markings to narrow the existing shoulders and provide a two-way left turn lane.

**Please Note:** The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior  
Fish and Wildlife Service

Project name: Fitzwilliam, 16211

### Project Location Map:



**Project Coordinates:** MULTIPOLYGON (((-72.14003245131842 42.78092924628053, -72.1392120562031 42.7804017922887, -72.13744573425538 42.779365277296904, -72.1357139675639 42.778637902822155, -72.13565594434134 42.77855039563505, -72.1356767926526 42.778447490095516, -72.1357642998397 42.77838946687295, -72.13584353309562 42.77839755409317, -72.13756014686516 42.77911573171187, -72.13935808494044 42.78016949642142, -72.14020311096125 42.78071421993554, -72.14200555541926 42.78224500519639, -72.14205348265706 42.78233842458424, -72.14202131484927 42.78243837174174, -72.14192789546142 42.78248629897954, -72.14182794830391 42.78245413117175, -72.14003245131842 42.78092924628053)))

**Project Counties:** Cheshire, NH



United States Department of Interior  
Fish and Wildlife Service

Project name: Fitzwilliam, 16211

## Endangered Species Act Species List

There are a total of 1 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Northern long-eared Bat ( <i>Myotis septentrionalis</i> ) Population: Wherever found	Threatened		





United States Department of Interior  
Fish and Wildlife Service

Project name: Fitzwilliam, 16211

## **Critical habitats that lie within your project area**

There are no critical habitats within your project area.

**Appendix B Certification – Projects with Minimal Potential to Cause Effects**

**Date Reviewed:** 11/1/2017  
(Desktop or Field Review Date)

**Project Name:** Fitzwilliam

**State Number:** 16211

**FHWA Number:** X-A0001(191)

**Environmental Contact:** Marc Laurin  
**Email Address:** marc.laurin@dot.nh.gov

**DOT**  
**Project Manager:** Michael Dugas

**Project Description:** Reconfigure the NH Route 12 intersection with NH Route 119. This intersection has been identified as part of the Highway Safety Improvement Program as requiring improvement to increase safety at the intersection. The proposed improvements will implement traffic calming measures on NH 12 to reduce speeds nearing the intersection, which will include construction of raised traffic islands on the NH 12 approaches to the intersection and the reconfiguration of lane markings to narrow the existing shoulders and provide a two-way left turn lane for access into adjacent properties.

Please select the applicable undertaking type(s):

Highway and Roadway Improvements	
<input checked="" type="checkbox"/>	1. Modernization and general highway maintenance <u>that may require additional highway right-of-way or easement</u> , including:  e. ditching, provided excavation does not exceed 8" and is not located within 25' of a cemetery f. median barrier installation l. construction of turning lanes and pockets, auxiliary lanes and shoulder widening
<input type="checkbox"/>	2. Installation of rumble strips or rumble stripes
<input type="checkbox"/>	3. Installation or replacement of pole-mounted signs
<input type="checkbox"/>	4. Guardrail replacement, provided any extension does not connect to a bridge older than 50 years old (unless it does already), and there is no change in access associated with the extension
Bridge and Culvert Improvements	
<input type="checkbox"/>	5. Bridge deck preservation and replacement, as long as no character defining features are impacted
<input type="checkbox"/>	6. Non-historic bridge and culvert maintenance, renovation, or total replacement, <u>that may require minor additional right-of-way or easement</u> , including: Choose an item.
<input type="checkbox"/>	7. Historic bridge maintenance activities within the limits of existing right-of-way, including: Choose an item.
<input type="checkbox"/>	8. Stream and/or slope stabilization and restoration activities (including removal of debris or sediment obstructing the natural waterway, or any non-invasive action to restore natural conditions)
Bicycle and Pedestrian Improvements	
<input type="checkbox"/>	9. Construction of pedestrian walkways, sidewalks, sidewalk tip-downs, small passenger shelters, and alterations to facilities or vehicles in order to make them accessible for elderly and handicapped persons
<input type="checkbox"/>	10. Installation of bicycle racks
<input type="checkbox"/>	11. Recreational trail construction
<input type="checkbox"/>	12. Recreational trail maintenance when done on existing alignment
<input type="checkbox"/>	13. Construction of bicycle lanes and shared use paths and facilities within the existing right-of-way

**Appendix B Certification – Projects with Minimal Potential to Cause Effects**

The Department has coordinated with Town officials, the Southwest Regional Planning Commission and the public at various meetings noted below. The Proposed Action has been discussed and comments received from Town officials and the public indicating support for the project. A review of the impacts determined that there is no potential sensitivity for archaeological site within the APE, as the Proposed Action will occur within the roadway Right-of Way or within previously impacted areas adjacent to the roadways. The project will not directly or indirectly impact the integrity of potential historic properties located within the project limits.


*NHDOT in-house projects: Please append photographs, USGS maps, design plans and as-built plans, if available, for review.*

*LPA projects: Please submit this Certification Form along with the Transportation RPR*

**Coordination Efforts:**

Has an RPR been submitted to NHDOT for this project?	Choose an item.	NHDHR R&C # assigned?	Click here to enter text.
Please identify public outreach effort contacts; method of outreach and date:	Public Informational Meetings - August 16, 2012, and August 22, 2016. Working Group Meeting - September 24, 2013. Road Safety Audit with Town Officials, SWRPC, and NHDOT - August 31, 2009. Initial Contact Letters - May 3, 2017.		

Finding: (To be filled out by NHDOT Cultural Resources Staff )

<input type="checkbox"/>	No Potential to Cause Effects	<input checked="" type="checkbox"/>	No Historic Properties Affected
This finding serves as the Section 106 Memorandum for your environmental documents, no further coordination is necessary.			
<input type="checkbox"/>	<b>This project does not comply with Appendix B, and will continue under the Section 106 review process outlined in 36 CFR 800.3-800.7. Please contact NHDOT Cultural Resources Staff to determine next steps.</b>		
NHDOT comments:			
		11/7/2017	
_____ NHDOT Cultural Resources Staff		_____ Date	

Coordination of the Section 106 process should begin as early as possible in the planning phase of the project (undertaking) so as not to cause a delay.

Project sponsors should not predetermine a Section 106 finding under the assumption that an undertaking conforms to the types listed in Appendix B until this form is signed by the NHDOT Bureau of Environment Cultural Resources Program staff.

Every project shall be coordinated with, and reviewed by the NHDOT-BOE Cultural Resources Program in accordance with the Cultural Resources Programmatic Agreement among the Advisory Council on Historic Preservation, Federal Highway Administration, NH Department of Transportation, and the State Historic Preservation Office. In accordance with the Advisory Council's regulations, we will continue to consult, as appropriate, as this project proceeds.

If any portion of the undertaking is not entirely limited to any one or a combination of the types specified in Appendix B (with, or without a portion that is included as a type listed in Appendix A), please continue discussions with NHDOT Cultural Resources staff.





**US Army Corps  
of Engineers**  
New England District

**U.S. Army Corps of Engineers  
New Hampshire Programmatic General Permit (PGP)  
Appendix B - Corps Secondary Impacts Checklist  
(for inland wetland/waterway fill projects in New Hampshire)**

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to "work" include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See PGP, GC 5 regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

	Yes	No
<b>1. Impaired Waters</b>		
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See <a href="http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm">http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm</a> to determine if there is an impaired water in the vicinity of your work area.*		<b>X</b>
<b>2. Wetlands</b>		
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	<b>X</b>	
2.2 Are there proposed impacts to SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, <a href="http://www.nhnaturalheritage.org">www.nhnaturalheritage.org</a> , specifically the book <a href="#">Natural Community Systems of New Hampshire</a> .		<b>X</b>
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	<b>X</b>	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		<b>X</b>
2.5 The overall project site is more than 40 acres.		<b>X</b>
2.6 What is the size of the existing impervious surface area?	<b>N/A</b>	
2.7 What is the size of the proposed impervious surface area?	<b>N/A</b>	
2.8 What is the % of the impervious area (new and existing) to the overall project site?	<b>N/A</b>	
<b>3. Wildlife</b>		
3.1 Has the NHB determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require a NHB determination.)	<b>X</b>  NO RECORDS	
3.2 Would work occur in any area identified as either "Highest Ranked Habitat in N.H." or "Highest Ranked Habitat in Ecological Region"? (These areas are colored magenta and green, respectively, on NH Fish and Game's map, "2010 Highest Ranked Wildlife Habitat by Ecological Condition.") Map information can be found at: <ul style="list-style-type: none"> <li>• PDF: <a href="http://www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm">www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm</a>.</li> <li>• Data Mapper: <a href="http://www.granit.unh.edu">www.granit.unh.edu</a>.</li> <li>• GIS: <a href="http://www.granit.unh.edu/data/downloadfreedata/category/databycategory.html">www.granit.unh.edu/data/downloadfreedata/category/databycategory.html</a>.</li> </ul>		<b>X</b>  Supporting landscape is within the project
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		<b>X</b>
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		<b>X</b>
3.5 Are stream crossings designed in accordance with the PGP, GC 21?		<b>n/a</b>



4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	X	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?	Not being impacted	
5. Historic/Archaeological Resources		
If a minor or major impact project, has a copy of the Request for Project Review (RPR) Form ( <a href="http://www.nh.gov/nhdhr/review">www.nh.gov/nhdhr/review</a> ) been sent to the NH Division of Historical Resources as required on Page 5 of the PGP?**	X	

\*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.

\*\* If project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.



Impact Area 2C STA 204+16 RT – Inlet, 04/13/2017



Impact Area 2C STA 204+16 RT – Inlet, 04/13/2017





Impact Area 1D STA 204+16 LT – Outlet, 04/13/2017



Impact Area 1D STA 204+16 LT – Outlet, 04/13/2017





Impact Area 4E STA 208+19 RT – Inlet, 04/13/2017



Impact Area 3F STA 208+19 LT – Outlet, 04/13/2017





Impact Area 3F STA 208+19 LT – Outlet, 04/13/2017





No Wetland Impacts, removal of existing catch basin STA 222+00 LT – Inlet, 04/13/2017



Impact Area 7G STA 221+00 LT – Outlet, 04/13/2017





Impact Area 9H STA 225+46 LT – Inlet, 04/13/2017



Impact Area 9H STA 225+46 LT – Inlet, 04/13/2017

***Project Advertises September 18, 2018***

***2019 Construction Season***

1. Install erosion control measures along future slope lines as shown in the erosion control plans.
2. Complete all clearing and grubbing within the limits as shown on the plans prior to April.
3. Complete all proposed drainage work. This includes three culvert modifications and one drive culvert replacement.
4. Construct step box widening along NH Route 12 in areas required.
5. Construct finished slopes.
6. Construct speed reduction medians along NH Route 12 at the north and south approaches to the intersection of NH Route 119.
7. Construct additional pavement and required shimming on NH Route 119.
8. Complete project wide pavement operations.
9. Install centerline rumble strips.
10. Remove perimeter controls.

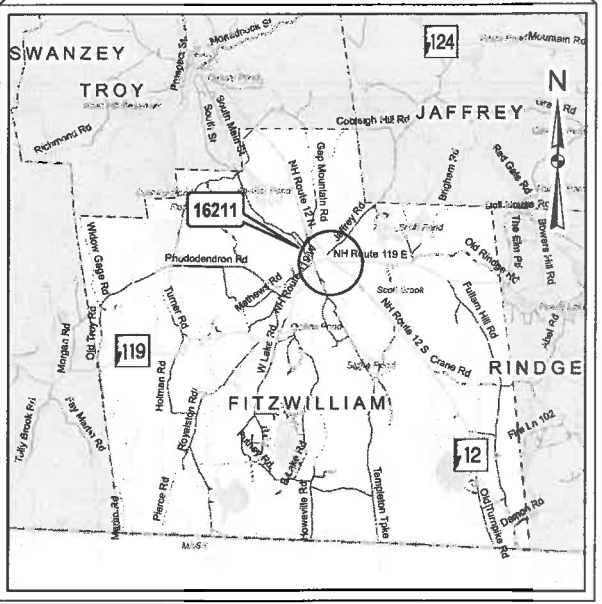
***Anticipated Completion: November 2019***

STATE OF NEW HAMPSHIRE  
DEPARTMENT OF TRANSPORTATION  
**WETLANDS PLANS  
FEDERAL AID PROJECT**

X-A001(191)  
N.H. PROJECT NO. 16211  
NH ROUTE 12

DESIGN DATA

AVERAGE DAILY TRAFFIC 20 17	6400
AVERAGE DAILY TRAFFIC 20 37	7800
PERCENT OF TRUCKS	4%
DESIGN SPEED	55 MPH
LENGTH OF PROJECT	3400 LF



LOCATION MAP

STA. 198+77.5  
START CONSTRUCTION

STA 415+00  
LIMIT OF WORK

STA 231+35  
END CONSTRUCTION

STA 411+52  
LIMIT OF WORK

to  
Winchendon, Mo.  
NH ROUTE 12

To Rindge  
NH ROUTE 119

Jaffrey Road

to Troy  
NH ROUTE 12

INDEX OF SHEETS

- 1 FRONT SHEET
- 2-3 STANDARD SYMBOLS SHEETS
- 4 WETLAND IMPACT SUMMARY
- 5-7 WETLAND IMPACT PLANS
- 8 EROSION CONTROL STRATEGIES
- 9-11 EROSION CONTROL PLANS

WETLANDS DELINEATED BY  
GOVE ENVIRONMENTAL SERVICES, INC.  
DELINEATED ON: 09/2017

**TOWN OF FITZWILLIAM**  
COUNTY OF HILLSBOROUGH

SCALE: 1:150

FOR CONSTRUCTION AND ALIGNMENT DETAILS - SEE CONSTRUCTION PLANS

**NHDOT** THE STATE OF  
NEW HAMPSHIRE  
DEPARTMENT OF  
TRANSPORTATION

NH ROUTE 12  
WETLAND IMPACT PLANS  
TOWN OF FITZWILLIAM  
06/01/2018

DRAWING NAME	FEDERAL PROJECT NO.	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
16211fsw	X-A001(191)	16211	1	11

DRAWN BY: D.J.D. DATE: 06/2018  
CHECKED BY: L.M.S. DATE: 06/2018

## GENERAL

EDGE OF PAVEMENT TRAVELED WAY			
DRIVEWAYS			(label surface type)
BUILDINGS			(label house or type of building) (building to be removed)
FOUNDATION			(label type)
LEACH FIELD			leach field
BRIDGE CROSSINGS			STREAM OVERPASS
STEPS AND WALK			(label type)
INTERMITTENT WATER COURSE			
SHORE LINE			river/stream pond (label name of water body)
POTENTIAL WET AREA SYMBOL			
BRUSH OR WOODS LINE			
TREES (PLANS)			(deciduous)(coniferous) (stump)
TREE OR STUMP (CROSS-SECTIONS)			(show station, circumference in feet & type)
HEDGE			(label type)
MONITORING WELL			mon
WELL			
FLAG POLE			

ORIGINAL GROUND  
(TYPICALS)

ROCK OUTCROP

ROCK LINE  
(TYPICALS & SECTIONS ONLY)

GUARDRAIL (label type)

JERSEY BARRIER

CURB (LABEL TYPE)

STONE WALL

RETAINING WALL (LABEL TYPE)

FENCE (LABEL TYPE)

SIGNS

GAS PUMP

FUEL TANK (ABOVE GROUND)

STORAGE TANK FILLER CAP

SEPTIC TANK

GRAVE

MAILBOX

VENT PIPE

SATELLITE DISH ANTENNA

PHONE

GROUND LIGHT/LAMP POST

BORING LOCATION

TEST PIT

INTERSTATE NUMBERED HIGHWAY

UNITED STATES NUMBERED HIGHWAY

STATE NUMBERED HIGHWAY

## SHORELAND - WETLAND

WETLAND DESIGNATION AND TYPE

DELINEATED WETLAND  
ORDINARY HIGH WATER  
TOP OF BANK  
TOP OF BANK & ORDINARY HIGH WATER  
NORMAL HIGH WATER  
WIDTH AT BANK FULL  
PRIME WETLAND  
PRIME WETLAND 100' BUFFER  
NON-JURISDICTIONAL DRAINAGE AREA  
COWARDIN DISTINCTION LINE  
TIDAL BUFFER ZONE  
DEVELOPED TIDAL BUFFER ZONE  
HIGHEST OBSERVABLE TIDE LINE  
MEAN HIGH WATER  
MEAN LOW WATER  
VERNAL POOL  
SPECIAL AQUATIC SITE  
REFERENCE LINE  
WATER FRONT BUFFER  
NATURAL WOODLAND BUFFER  
PROTECTED SHORELAND  
INVASIVE SPECIES LABEL  
INVASIVE SPECIES


## FLOODPLAIN / FLOODWAY

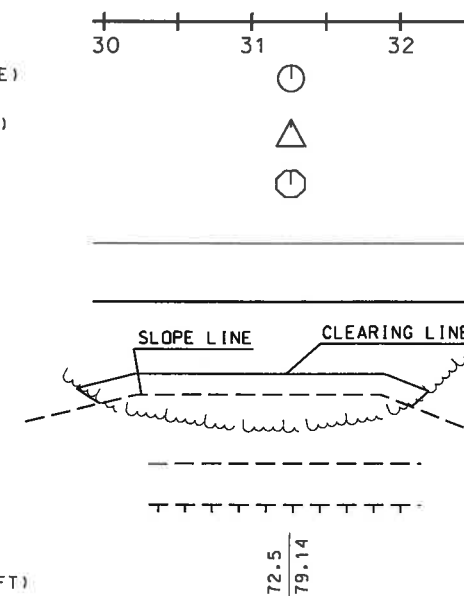
500 YEAR FLOODPLAIN BOUNDARY  
100 YEAR FLOODPLAIN BOUNDARY  
FLOODWAY


## ENGINEERING

CONSTRUCTION BASELINE  
PC, PT, POT (ON CONST BASELINE)  
PI (IN CONSTRUCTION BASELINES)  
INTERSECTION OR EQUATION OF TWO LINES  
ORIGINAL GROUND LINE  
(PROFILES AND CROSS-SECTIONS)  
PROFILE GRADE LINE  
(PROFILES AND CROSS-SECTIONS)

CLEARING LINE  
SLOPE LINE  
SLOPE LINE (FILL)  
SLOPE LINE (CUT)

PROFILES AND CROSS SECTIONS:  
ORIGINAL GROUND ELEVATION (LEFT)  
FINISHED GRADE ELEVATION (RIGHT)



SHEET 1 OF 2

STATE OF NEW HAMPSHIRE

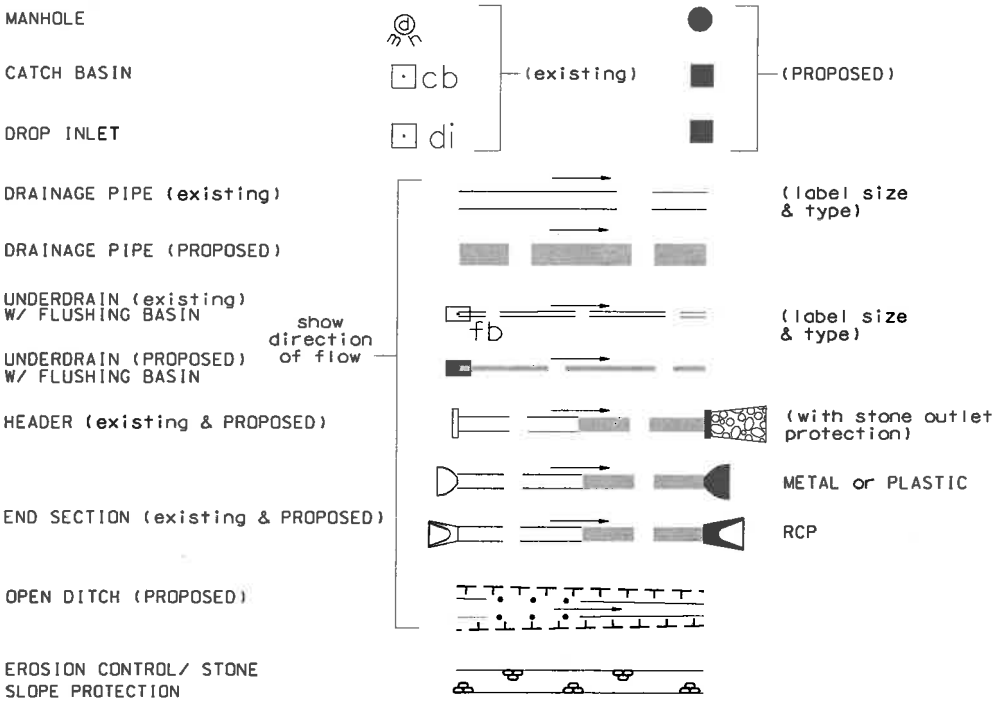
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN

## STANDARD SYMBOLS

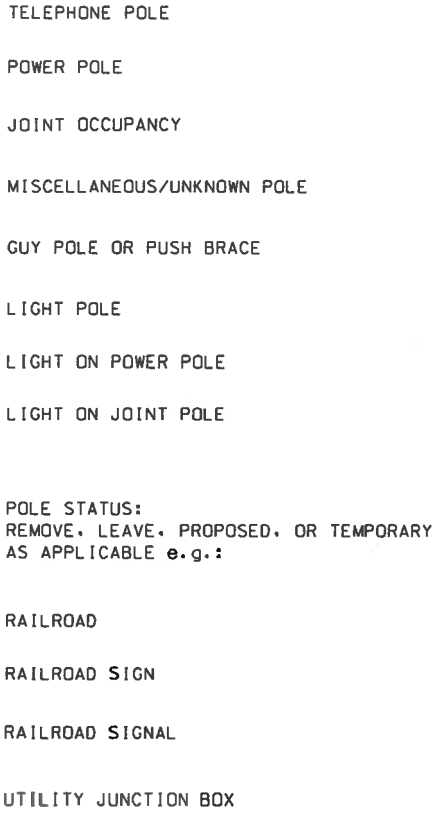
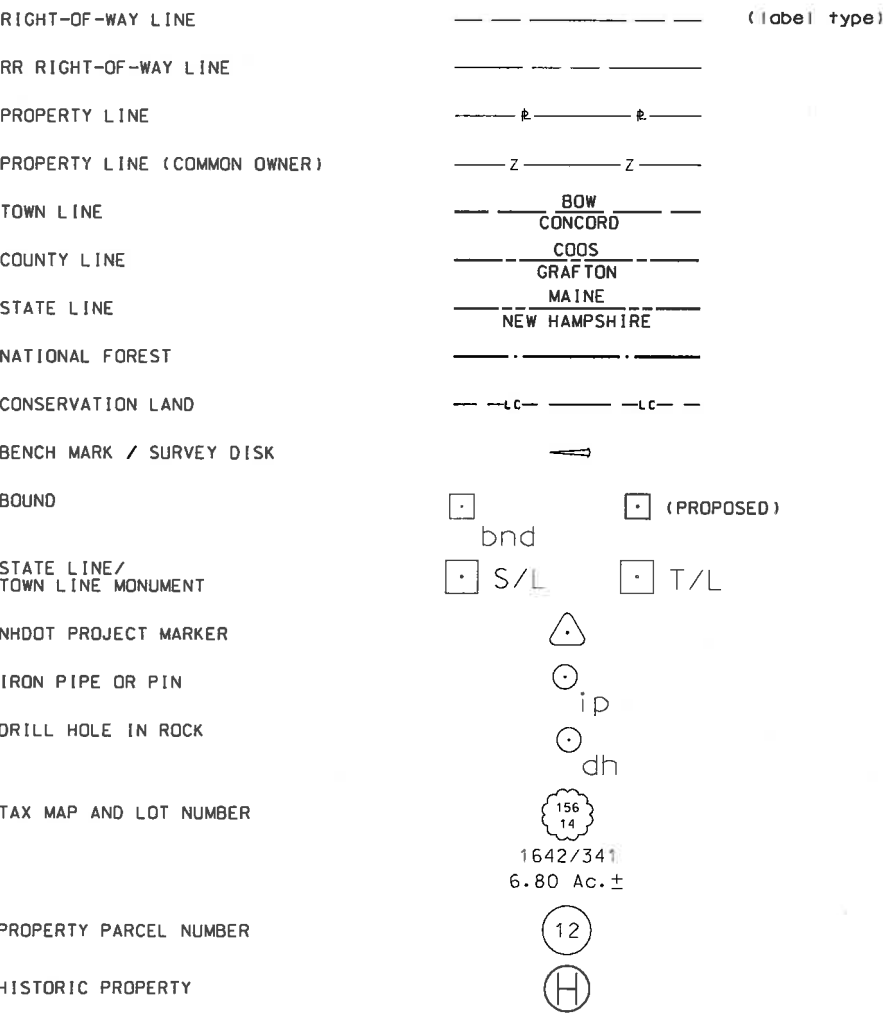
REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
11-21-2014	16211wetplans	16211	2	11



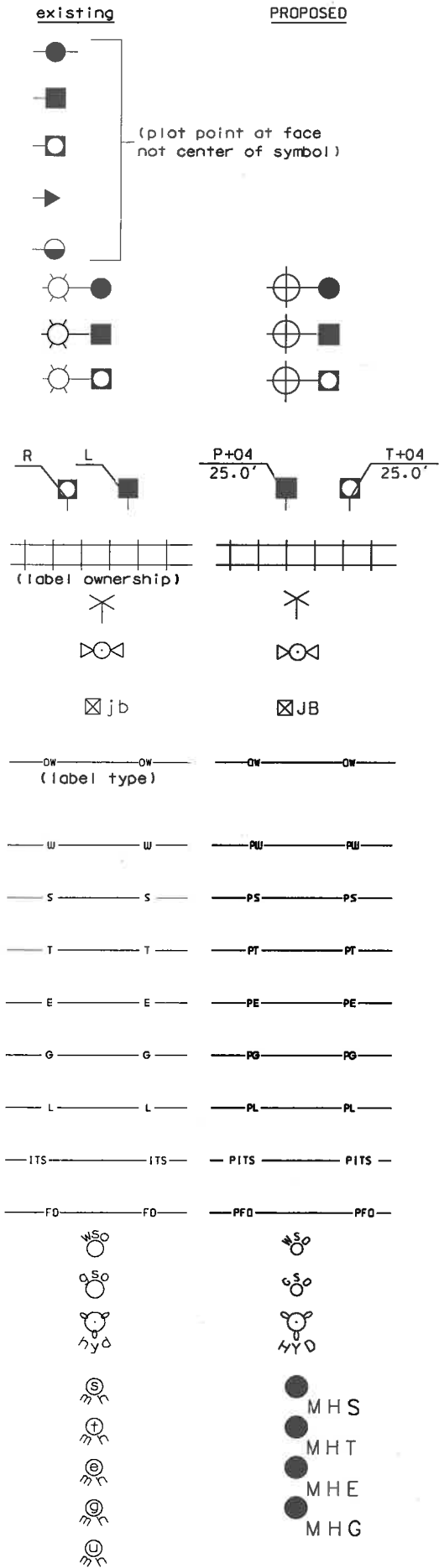
DRAINAGE



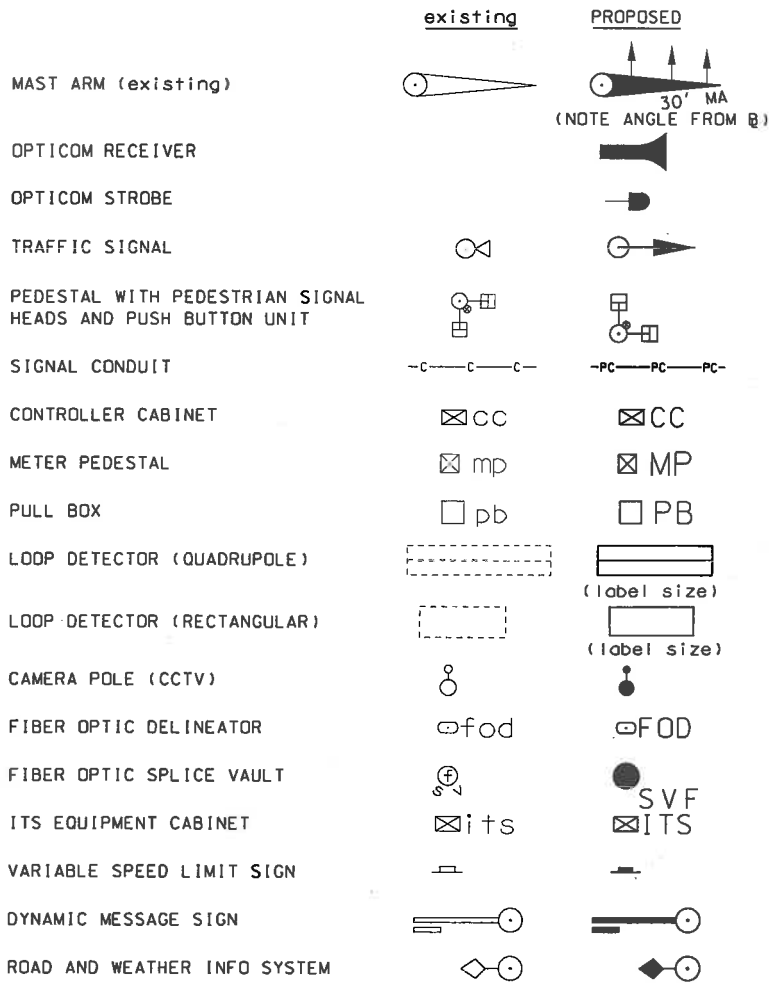
BOUNDARIES / RIGHT-OF-WAY



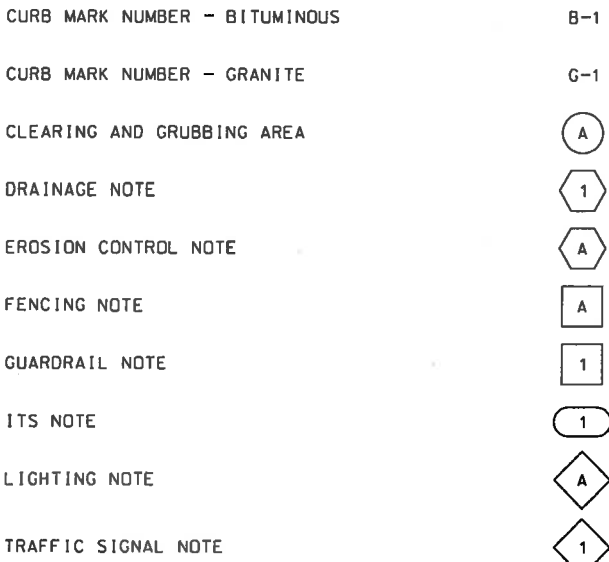
UTILITIES



TRAFFIC SIGNALS / ITS



CONSTRUCTION NOTES



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
STANDARD SYMBOLS				
REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
9-1-2016	16211wetplans	16211	3	11

LEGEND	
TYPE OF WETLAND IMPACT	SHADING/HATCHING
NEW HAMPSHIRE WETLANDS BUREAU (PERMANENT NON-WETLAND)	
NEW HAMPSHIRE WETLANDS BUREAU & ARMY CORP OF ENGINEERS (PERMANENT WETLAND)	
TEMPORARY IMPACTS	
#	WETLAND DESIGNATION NUMBER
#	WETLAND IMPACT LOCATION
#	WETLAND MITIGATION AREA
	MITIGATION

WETLAND CLASSIFICATION CODES	
PEM1	PALUSTRINE, EMERGENT, PERSISTENT
PEM1E	PALUSTRINE, EMERGENT, PERSISTENT, SEASONALLY FLOODED/SATURATED
PEM2	PALUSTRINE, EMERGENT, NONPERSISTENT
PFO1	PALUSTRINE, FORESTED, BROAD-LEAVED DECIDUOUS
PSS1	PALUSTRINE, SCRUB-SHRUB, BROAD-LEAVED DECIDUOUS

EROSION CONTROL PLAN LEGEND	
	PERIMETER CONTROL SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
	NATURAL BUFFER/PERIMETER CONTROL SILT FENCE EROSION CONTROL MIX BERM EROSION CONTROL MIX SOX TURBIDITY CURTAIN SHEET PILE COFFER DAM
	CHANNEL PROTECTION STONE CHECK DAMS STRAW WATTLES CHANNEL MATTING CLASS D EROSION STONE CLASS C STONE
	CLEAN WATER BYPASS PUMP THROUGH PIPE DRAIN THROUGH PIPE OR CHANNEL

WETLAND IMPACT SUMMARY														
WETLAND NUMBER	WETLAND CLASSIFICATION	LOCATION	AREA IMPACTS									LINEAR STREAM IMPACTS FOR MITIGATION		
			PERMANENT				TEMPORARY					PERMANENT		
			N.H.W.B (NON- WETLAND) (BANK)		N.H.W.B AND A.C.O.E. (WETLAND)		N.H.W.B (NON- WETLAND) (BANK)		N.H.W.B AND A.C.O.E. (WETLAND)			BANK LEFT	BANK RIGHT	CHAN.
			SF	LF	SF	LF	SF	LF	SF	LF		LF	LF	LF
1	PEM1/PSS1/PFO1	A			10									
1	PEM1/PSS1/PFO1	B			32									
2	PEM1E/PSS1	C			333									
1	PEM1/PSS1/PFO1	D			414									
4	PSS1	E			105									
3	PFO1	F			203				290					
7	PEM1/2	G			44				13					
9	PFO1	H			29				21					
		Total	0	0	1170	0	0	0	324	0		0	0	0

PERMANENT IMPACTS: 1170 SF

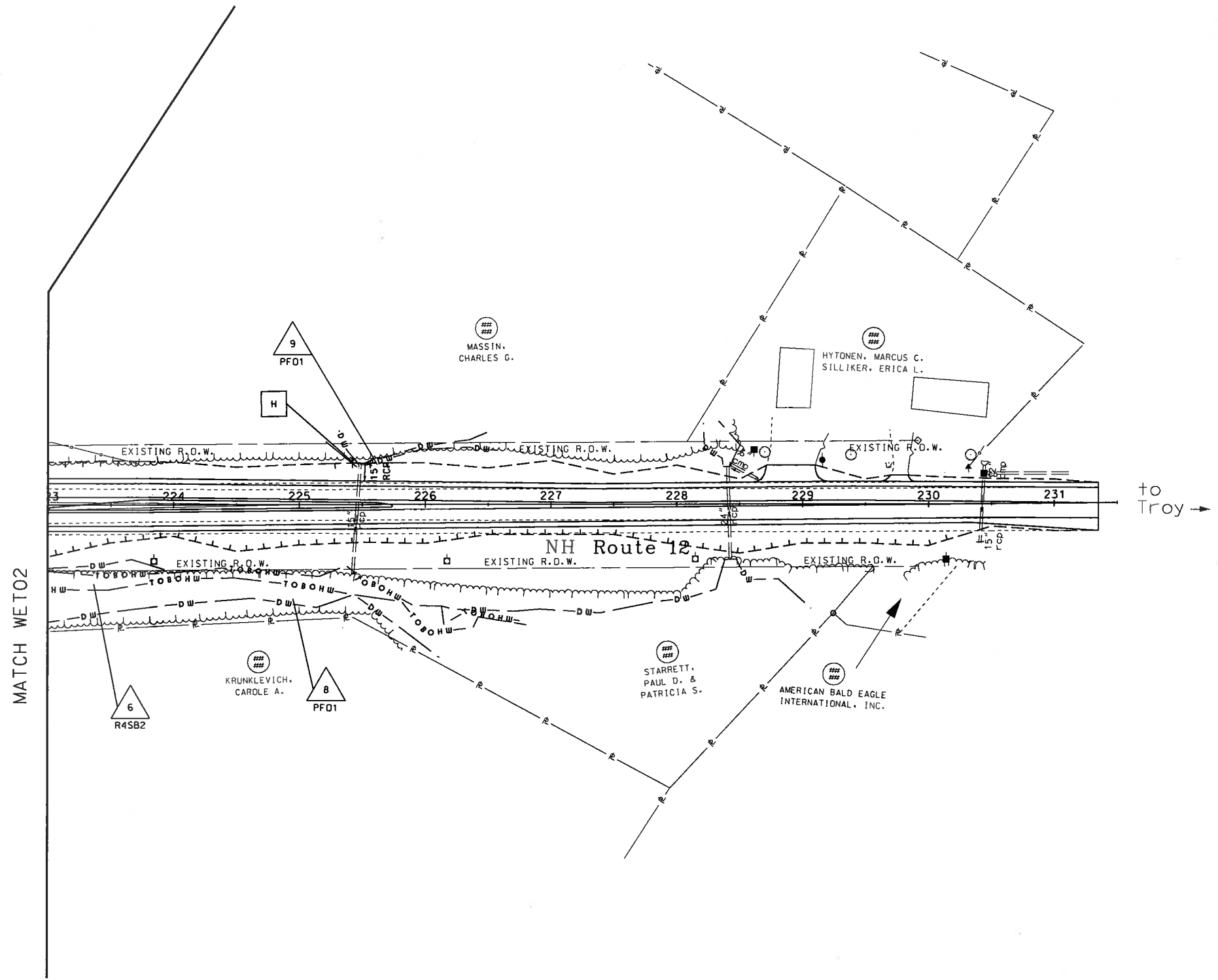
TEMPORARY IMPACTS: 324 SF

TOTAL IMPACTS: 1494 SF





SDR PROCESSED	DATE	REVISIONS AFTER PROPOSAL			
	NEW DESIGN	DJD	DATE	STATION	DESCRIPTION
	SHEET CHECKED	LMS	DATE		
	AS BUILT DETAILS		DATE		



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF ENVIRONMENT				
<b>WETLAND IMPACT PLANS</b>				
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
WET03	16211wetplans	16211	7	11



EROSION CONTROL STRATEGIES

1. ENVIRONMENTAL COMMITMENTS:
- 1.1. THESE GUIDELINES DO NOT RELIEVE THE CONTRACTOR FROM COMPLIANCE WITH ANY CONTRACT PROVISIONS, OR APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.
- 1.2. THIS PROJECT WILL BE SUBJECT TO THE US EPA'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORM WATER CONSTRUCTION GENERAL PERMIT AS ADMINISTERED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THIS PROJECT IS SUBJECT TO REQUIREMENTS IN THE MOST RECENT CONSTRUCTION GENERAL PERMIT (CGP).
- 1.3. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE NHDES WETLAND PERMIT, THE US ARMY CORPS OF ENGINEERS PERMIT, WATER QUALITY CERTIFICATION AND THE SPECIAL ATTENTION ITEMS INCLUDED IN THE CONTRACT DOCUMENTS.
- 1.4. ALL STORM WATER, EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE NEW HAMPSHIRE STORMWATER MANUAL, VOLUME 3, EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION (DECEMBER 2008) (BMP MANUAL) AVAILABLE FROM THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES (NHDES).
- 1.5. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17, AND ALL, PUBLISHED NHDES ALTERATION OF TERRAIN ENV-WQ 1500 REQUIREMENTS ([HTTP://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM](http://DES.NH.GOV/ORGANIZATION/COMMISSIONER/LEGAL/RULES/INDEX.HTM))
- 1.6. THE CONTRACTOR IS DIRECTED TO REVIEW AND COMPLY WITH SECTION 107.1 OF THE CONTRACT AS IT REFERS TO SPILLAGE, AND ALSO WITH REGARDS TO EROSION, POLLUTION, AND TURBIDITY PRECAUTIONS.
2. STANDARD EROSION CONTROL SEQUENCING APPLICABLE TO ALL CONSTRUCTION PROJECTS:
- 2.1. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH DISTURBING ACTIVITIES. PERIMETER CONTROLS AND STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AS SHOWN IN THE BMP MANUAL AND AS DIRECTED BY THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARER.
- 2.2. EROSION, SEDIMENTATION CONTROL MEASURES AND INFILTRATION BASINS SHALL BE CLEANED, REPLACED AND AUGMENTED AS NECESSARY TO PREVENT SEDIMENTATION BEYOND PROJECT LIMITS THROUGHOUT THE PROJECT DURATION.
- 2.3. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT AND SECTION 645 OF THE NHDOT SPECIFICATIONS FOR ROAD AND BRIDGES CONSTRUCTION.
- 2.4. AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- (A) BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
- (B) A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
- (C) A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP-RAP HAS BEEN INSTALLED;
- (D) TEMPORARY SLOPE STABILIZATION CONFORMING TO TABLE 1 HAS BEEN PROPERLY INSTALLED
- 2.5. ALL STOCKPILES SHALL BE CONTAINED WITH A PERIMETER CONTROL. IF THE STOCKPILE IS TO REMAIN UNDISTURBED FOR MORE THAN 14 DAYS, MULCHING WILL BE REQUIRED.
- 2.6. A WATER TRUCK SHALL BE AVAILABLE TO CONTROL EXCESSIVE DUST AT THE DIRECTION OF THE CONTRACT ADMINISTRATOR.
- 2.7. TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL REMAIN UNTIL THE AREA HAS BEEN PERMANENTLY STABILIZED.
- 2.8. CONSTRUCTION PERFORMED ANY TIME BETWEEN NOVEMBER 30\* AND MAY 1\* OF ANY YEAR SHALL BE CONSIDERED WINTER CONSTRUCTION AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS.
- (A) ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15\*, OR WHICH ARE DISTURBED AFTER OCTOBER 15\*, SHALL BE STABILIZED IN ACCORDANCE WITH TABLE 1.
- (B) ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GRDWTB BY OCTOBER 15\*, OR WHICH ARE DISTURBED AFTER OCTOBER 15\*, SHALL BE STABILIZED TEMPORARILY WITH STONE OR IN ACCORDANCE WITH TABLE 1.
- (C) AFTER NOVEMBER 30\* INCOMPLETE ROAD SURFACES, WHERE WORK HAS STOPPED FOR THE SEASON, SHALL BE PROTECTED IN ACCORDANCE WITH TABLE 1.
- (D) WINTER EXCAVATION AND EARTHWORK SHALL BE DONE SUCH THAT NO MORE THAN 1 ACRE OF THE PROJECT IS WITHOUT STABILIZATION AT ONE TIME. UNLESS A WINTER CONSTRUCTION PLAN HAS BEEN APPROVED BY NHDOT THAT MEETS THE REQUIREMENTS OF ENV-WQ 1505.02 AND ENV-WQ 1505.05.
- (E) A SWPPP AMENDMENT SHALL BE SUBMITTED TO THE DEPARTMENT, FOR APPROVAL, ADDRESSING COLD WEATHER STABILIZATION (ENV-WQ 1505.05) AND INCLUDING THE REQUIREMENTS OF NO LESS THAN 30 DAYS PRIOR TO THE COMMENCEMENT OF WORK SCHEDULED AFTER NOVEMBER 30\*.

GENERAL CONSTRUCTION PLANNING AND SELECTION OF STRATEGIES TO CONTROL EROSION AND SEDIMENT ON HIGHWAY CONSTRUCTION PROJECTS

3. PLAN ACTIVITIES TO ACCOUNT FOR SENSITIVE SITE CONDITIONS:
- 3.1. CLEARLY FLAG AREAS TO BE PROTECTED IN THE FIELD AND PROVIDE CONSTRUCTION BARRIERS TO PREVENT TRAFFICKING OUTSIDE OF WORK AREAS.
- 3.2. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS.
- 3.3. PROTECT AND MAXIMIZE EXISTING NATIVE VEGETATION AND NATURAL FOREST BUFFERS BETWEEN CONSTRUCTION ACTIVITY AND SENSITIVE AREAS.
- 3.4. WHEN WORK IS PERFORMED IN AND NEAR WATER COURSES, STREAM FLOW DIVERSION METHODS SHALL BE IMPLEMENTED PRIOR TO ANY EXCAVATION OR FILLING.
- 3.5. WHEN WORK IS PERFORMED WITHIN 50 FEET OF SURFACE WATERS (WETLAND, OPEN WATER OR FLOWING WATER), PERIMETER CONTROL SHALL BE ENHANCED CONSISTENT WITH SECTION 2.1.2.1. OF THE 2012 NPDES CONSTRUCTION GENERAL PERMIT.
4. MINIMIZE THE AMOUNT OF EXPOSED SOIL:
- 4.1. CONSTRUCTION SHALL BE SEQUENCED TO LIMIT THE DURATION AND AREA OF EXPOSED SOILS. MINIMIZE THE AREA OF EXPOSED SOIL AT ANY ONE TIME. PHASING SHALL BE USED TO REDUCE THE AMOUNT AND DURATION OF SOIL EXPOSED TO THE ELEMENTS AND VEHICLE TRACKING.
- 4.2. UTILIZE TEMPORARY MULCHING OR PROVIDE ALTERNATE TEMPORARY STABILIZATION ON EXPOSED SOILS IN ACCORDANCE WITH TABLE 1.
- 4.3. THE MAXIMUM AMOUNT OF DISTURBED EARTH SHALL NOT EXCEED A TOTAL OF 5 ACRES FROM MAY 1\* THROUGH NOVEMBER 30\*, OR EXCEED ONE ACRE DURING WINTER MONTHS, UNLESS THE CONTRACTOR DEMONSTRATES TO THE DEPARTMENT THAT THE ADDITIONAL AREA OF DISTURBANCE IS NECESSARY TO MEET THE CONTRACTORS CRITICAL PATH METHOD SCHEDULE (CPM), AND THE CONTRACTOR HAS ADEQUATE RESOURCES AVAILABLE TO ENSURE THAT ENVIRONMENTAL COMMITMENTS WILL BE MET.
5. CONTROL STORMWATER FLOWING ONTO AND THROUGH THE PROJECT:
- 5.1. DIVERT OFF SITE RUNOFF OR CLEAN WATER AWAY FROM THE CONSTRUCTION ACTIVITY TO REDUCE THE VOLUME THAT NEEDS TO BE TREATED ON SITE.
- 5.2. DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM DISTURBED AREAS, SLOPES, AND AROUND ACTIVE WORK AREAS AND TO A STABILIZED OUTLET LOCATION.
- 5.3. CONSTRUCT IMPERMEABLE BARRIERS AS NECESSARY TO COLLECT OR DIVERT CONCENTRATED FLOWS FROM WORK OR DISTURBED AREAS.
- 5.4. STABILIZE, TO APPROPRIATE ANTICIPATED VELOCITIES, CONVEYANCE CHANNELS OR PUMPING SYSTEMS NEEDED TO CONVEY CONSTRUCTION STORMWATER TO BASINS AND DISCHARGE LOCATIONS PRIOR TO USE.
- 5.5. DIVERT OFF-SITE WATER THROUGH THE PROJECT IN AN APPROPRIATE MANNER SO NOT TO DISTURB THE UPSTREAM OR DOWNSTREAM SOILS, VEGETATION OR HYDROLOGY BEYOND THE PERMITTED AREA.
6. PROTECT SLOPES:
- 6.1. INTERCEPT AND DIVERT STORM RUNOFF FROM UPSLOPE DRAINAGE AREAS AWAY FROM UNPROTECTED AND NEWLY ESTABLISHED AREAS AND SLOPES TO A STABILIZED OUTLET OR CONVEYANCE.
- 6.2. CONSIDER HOW GROUNDWATER SEEPAGE ON CUT SLOPES MAY IMPACT SLOPE STABILITY AND INCORPORATE APPROPRIATE MEASURES TO MINIMIZE EROSION.
- 6.3. CONVEY STORMWATER DOWN THE SLOPE IN A STABILIZED CHANNEL OR SLOPE DRAIN.
- 6.4. THE OUTER FACE OF THE FILL SLOPE SHOULD BE IN A LOOSE RUFFLED CONDITION PRIOR TO TURF ESTABLISHMENT. TOPSOIL OR HUMUS LAYERS SHALL BE TRACKED UP AND DOWN THE SLOPE, DISKED, HARROWED, DRAGGED WITH A CHAIN OR MAT, MACHINE-RAKED, OR HAND-WORKED TO PRODUCE A RUFFLED SURFACE.
7. ESTABLISH STABILIZED CONSTRUCTION EXITS:
- 7.1. INSTALL AND MAINTAIN CONSTRUCTION EXITS, ANYWHERE TRAFFIC LEAVES A CONSTRUCTION SITE ONTO A PUBLIC RIGHT-OF-WAY.
- 7.2. SWEEP ALL CONSTRUCTION RELATED DEBRIS AND SOIL FROM THE ADJACENT PAVED ROADWAYS AS NECESSARY.
8. PROTECT STORM DRAIN INLETS:
- 8.1. DIVERT SEDIMENT LADEN WATER AWAY FROM INLET STRUCTURES TO THE EXTENT POSSIBLE.
- 8.2. INSTALL SEDIMENT BARRIERS AND SEDIMENT TRAPS AT INLETS TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
- 8.3. CLEAN CATCH BASINS, DRAINAGE PIPES, AND CULVERTS IF SIGNIFICANT SEDIMENT IS DEPOSITED.
- 8.4. DROP INLET SEDIMENT BARRIERS SHOULD NEVER BE USED AS THE PRIMARY MEANS OF SEDIMENT CONTROL AND SHOULD ONLY BE USED TO PROVIDE AN ADDITIONAL LEVEL OF PROTECTION TO STRUCTURES AND DOWN-GRADIENT SENSITIVE RECEPTORS.
9. SOIL STABILIZATION:
- 9.1. WITHIN THREE DAYS OF THE LAST ACTIVITY IN AN AREA, ALL EXPOSED SOIL AREAS, WHERE CONSTRUCTION ACTIVITIES ARE COMPLETE, SHALL BE STABILIZED.
- 9.2. IN ALL AREAS, TEMPORARY SOIL STABILIZATION MEASURES SHALL BE APPLIED IN ACCORDANCE WITH THE STABILIZATION REQUIREMENTS (SECTION 2.2) OF THE 2012 CGP. (SEE TABLE 1 FOR GUIDANCE ON THE SELECTION OF TEMPORARY SOIL STABILIZATION MEASURES.)
- 9.3. EROSION CONTROL SEED MIX SHALL BE SOWN IN ALL INACTIVE CONSTRUCTION AREAS THAT WILL NOT BE PERMANENTLY SEEDED WITHIN TWO WEEKS OF DISTURBANCE AND PRIOR TO SEPTEMBER 15, OF ANY GIVEN YEAR, IN ORDER TO ACHIEVE VEGETATIVE STABILIZATION PRIOR TO THE END OF THE GROWING SEASON.
- 9.4. SOIL TACKIFIERS MAY BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REAPPLIED AS NECESSARY TO MINIMIZE SOIL AND MULCH LOSS UNTIL PERMANENT VEGETATION IS ESTABLISHED.
10. RETAIN SEDIMENT ON-SITE AND CONTROL DEWATERING PRACTICES:
- 10.1. TEMPORARY SEDIMENT BASINS (CGP-SECTION 2.1.3.2) OR SEDIMENT TRAPS (ENV-WQ 1506.10) SHALL BE SIZED TO RETAIN, ON SITE, THE VOLUME OF A 2-YEAR 24-HOUR STORM EVENT FOR ANY AREA OF DISTURBANCE OR 3,600 CUBIC FEET OF STORMWATER RUNOFF PER ACRE OF DISTURBANCE, WHICHEVER IS GREATER. TEMPORARY SEDIMENT BASINS USED TO TREAT STORMWATER RUNOFF FROM AREAS GREATER THAN 5-ACRES OF DISTURBANCE SHALL BE SIZED TO ALSO CONTROL STORMWATER RUNOFF FROM A 10-YEAR 24 HOUR STORM EVENT. ON-SITE RETENTION OF THE 10-YEAR 24-HOUR EVENT IS NOT REQUIRED.
- 10.2. CONSTRUCT AND STABILIZE DEWATERING INFILTRATION BASINS PRIOR TO ANY EXCAVATION THAT MAY REQUIRE DEWATERING.
- 10.3. TEMPORARY SEDIMENT BASINS OR TRAPS SHALL BE PLACED AND STABILIZED AT LOCATIONS WHERE CONCENTRATED FLOW (CHANNELS AND PIPES) DISCHARGE TO THE SURROUNDING ENVIRONMENT FROM AREAS OF UNSTABILIZED EARTH DISTURBING ACTIVITIES.

11. ADDITIONAL EROSION AND SEDIMENT CONTROL GENERAL PRACTICES:
- 11.1. USE TEMPORARY MULCHING, PERMANENT MULCHING, TEMPORARY VEGETATIVE COVER, AND PERMANENT VEGETATIVE COVER TO REDUCE THE NEED FOR DUST CONTROL. USE MECHANICAL SWEEPERS ON PAVED SURFACES WHERE NECESSARY TO PREVENT DUST BUILDUP. APPLY WATER, OR OTHER DUST INHIBITING AGENTS OR TACKIFIERS, AS APPROVED BY THE NHDES.
- 11.2. ALL STOCKPILES SHALL BE CONTAINED WITH TEMPORARY PERIMETER CONTROLS. INACTIVE SOIL STOCKPILES SHOULD BE PROTECTED WITH SOIL STABILIZATION MEASURES (TEMPORARY EROSION CONTROL SEED MIX AND MULCH, SOIL BINDER) OR COVERED WITH ANCHORED TARPS.
- 11.3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSPECTED IN ACCORDANCE WITH SECTION 645 OF NHDOT SPECIFICATIONS, WEEKLY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.25 IN. OF RAIN PER 24-HOUR PERIOD. EROSION AND SEDIMENT CONTROL MEASURES WILL ALSO BE INSPECTED IN ACCORDANCE WITH THE GUIDANCE MEMO FROM THE NHDES CONTAINED WITHIN THE CONTRACT PROPOSAL AND THE EPA CONSTRUCTION GENERAL PERMIT.
- 11.4. THE CONTRACTOR SHOULD UTILIZE STORM DRAIN INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING A STORM DRAINAGE SYSTEM PRIOR TO THE PERMANENT STABILIZATION OF THE CONTRIBUTING DISTURBED AREA.
- 11.5. PERMANENT STABILIZATION MEASURES WILL BE CONSTRUCTED AND MAINTAINED IN LOCATIONS AS SHOWN ON THE CONSTRUCTION PLANS TO STABILIZE AREAS. VEGETATIVE STABILIZATION SHALL NOT BE CONSIDERED PERMANENTLY STABILIZED UNTIL VEGETATIVE GROWTH COVERS AT LEAST 85% OF THE DISTURBED AREA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL FOR ONE YEAR AFTER PROJECT COMPLETION.
- 11.6. CATCH BASINS: CARE SHALL BE TAKEN TO ENSURE THAT SEDIMENTS DO NOT ENTER ANY EXISTING CATCH BASINS DURING CONSTRUCTION. THE CONTRACTOR SHALL PLACE TEMPORARY STONE INLET PROTECTION OVER INLETS IN AREAS OF SOIL DISTURBANCE THAT ARE SUBJECT TO SEDIMENT CONTAMINATION.
- 11.7. TEMPORARY AND PERMANENT DITCHES SHALL BE CONSTRUCTED, STABILIZED AND MAINTAINED IN A MANNER THAT WILL MINIMIZE SCOUR. TEMPORARY AND PERMANENT DITCHES SHALL BE DIRECTED TO DRAIN TO SEDIMENT BASINS OR STORM WATER COLLECTION AREAS.
- 11.8. WINTER EXCAVATION AND EARTHWORK ACTIVITIES NEED TO BE LIMITED IN EXTENT AND DURATION, TO MINIMIZE POTENTIAL EROSION AND SEDIMENTATION IMPACTS. THE AREA OF EXPOSED SOIL SHALL BE LIMITED TO ONE ACRE, OR THAT WHICH CAN BE STABILIZED AT THE END OF EACH DAY UNLESS A WINTER CONSTRUCTION PLAN, DEVELOPED BY A QUALIFIED ENGINEER OR A CPESC SPECIALIST, IS REVIEWED AND APPROVED BY THE DEPARTMENT.
- 11.9. CHANNEL PROTECTION MEASURES SHALL BE SUPPLEMENTED WITH PERIMETER CONTROL MEASURES WHEN THE DITCH LINES OCCUR AT THE BOTTOM OF LONG FILL SLOPES. THE PERIMETER CONTROLS SHALL BE INSTALLED ON THE FILL SLOPE TO MINIMIZE THE POTENTIAL FOR FILL SLOPE SEDIMENT DEPOSITS IN THE DITCH LINE.

BEST MANAGEMENT PRACTICES (BMP) BASED ON AMOUNT OF OPEN CONSTRUCTION AREA

12. STRATEGIES SPECIFIC TO OPEN AREAS LESS THAN 5 ACRES:
- 12.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17 AND ENV-WQ 1500: ALTERATION OF TERRAIN FOR CONSTRUCTION AND USE ALL CONVENTIONAL BMP STRATEGIES.
- 12.2. SLOPES STEEPER THAN 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING.
- 12.3. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT ALONE.
- 12.4. AREAS WHERE HAUL ROADS ARE CONSTRUCTED AND STORMWATER CANNOT BE TREATED THE DEPARTMENT WILL CONSIDER INFILTRATION.
- 12.5. FOR HAUL ROADS ADJACENT TO SENSITIVE ENVIRONMENTAL AREAS OR STEEPER THAN 5%, THE DEPARTMENT WILL CONSIDER USING EROSION STONE, CRUSHED GRAVEL, OR CRUSHED STONE BASE TO HELP MINIMIZE EROSION ISSUES.
- 12.6. ALL AREAS THAT CAN BE STABILIZED SHALL BE STABILIZED PRIOR TO OPENING UP NEW TERRITORY.
- 12.7. DETENTION BASINS SHALL BE DESIGNED AND CONSTRUCTED TO ACCOMMODATE A 2 YEAR STORM EVENT.
13. STRATEGIES SPECIFIC TO OPEN AREAS BETWEEN 5 AND 10 ACRES:
- 13.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES WILL BE UTILIZED.
- 13.2. DETENTION BASINS WILL BE CONSTRUCTED TO ACCOMMODATE THE 2-YEAR 24-HOUR STORM EVENT AND CONTROL A 10-YEAR 24-HOUR STORM EVENT.
- 13.3. SLOPES STEEPER THAN A 3:1 WILL RECEIVE TURF ESTABLISHMENT WITH MATTING OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS. OTHER ALTERNATIVE MEASURES, SUCH AS BONDED FIBER MATRIXES (BFMS) OR FLEXIBLE GROWTH MEDIUMS (FGMS) MAY BE UTILIZED, IF MEETING THE NHDES APPROVALS AND REGULATIONS.
- 13.4. SLOPES 3:1 OR FLATTER WILL RECEIVE TURF ESTABLISHMENT OR OTHER TEMPORARY SOIL STABILIZATION MEASURES DETAILED IN TABLE 1. THE CONTRACTOR MAY ALSO CONSIDER A SOIL BINDER IN ACCORDANCE WITH THE NHDES APPROVALS OR REGULATIONS.
14. STRATEGIES SPECIFIC TO OPEN AREAS OVER 10 ACRES:
- 14.1. THE CONTRACTOR SHALL COMPLY WITH RSA 485-A:17 AND ENV-WQ 1500 ALTERATION OF TERRAIN AND SHALL USE CONVENTIONAL BMP STRATEGIES AND ALL TREATMENT OPTIONS USED FOR UNDER 5 ACRES AND BETWEEN 5 AND 10 ACRES WILL BE UTILIZED.
- 14.2. THE DEPARTMENT ANTICIPATES THAT SOIL BINDERS WILL BE NEEDED ON ALL SLOPES STEEPER THAN 3:1, IN ORDER TO MINIMIZE EROSION AND REDUCE THE AMOUNT OF SEDIMENT IN THE STORMWATER TREATMENT BASINS.
- 14.3. THE CONTRACTOR WILL BE REQUIRED TO HAVE AN APPROVED DESIGN IN ACCORDANCE WITH ENV-WQ 1506.12 FOR AN ACTIVE FLOCCULANT TREATMENT SYSTEM TO TREAT AND RELEASE WATER CAPTURED IN STORM WATER BASINS. THE CONTRACTOR SHALL ALSO RETAIN THE SERVICES OF AN ENVIRONMENTAL CONSULTANT WHO HAS DEMONSTRATED EXPERIENCE IN THE DESIGN OF FLOCCULANT TREATMENT SYSTEMS, THE CONSULTANT WILL ALSO BE RESPONSIBLE FOR THE IMPLEMENTATION AND MONITORING OF THE SYSTEM.

TABLE 1  
GUIDANCE ON SELECTING TEMPORARY SOIL STABILIZATION MEASURES

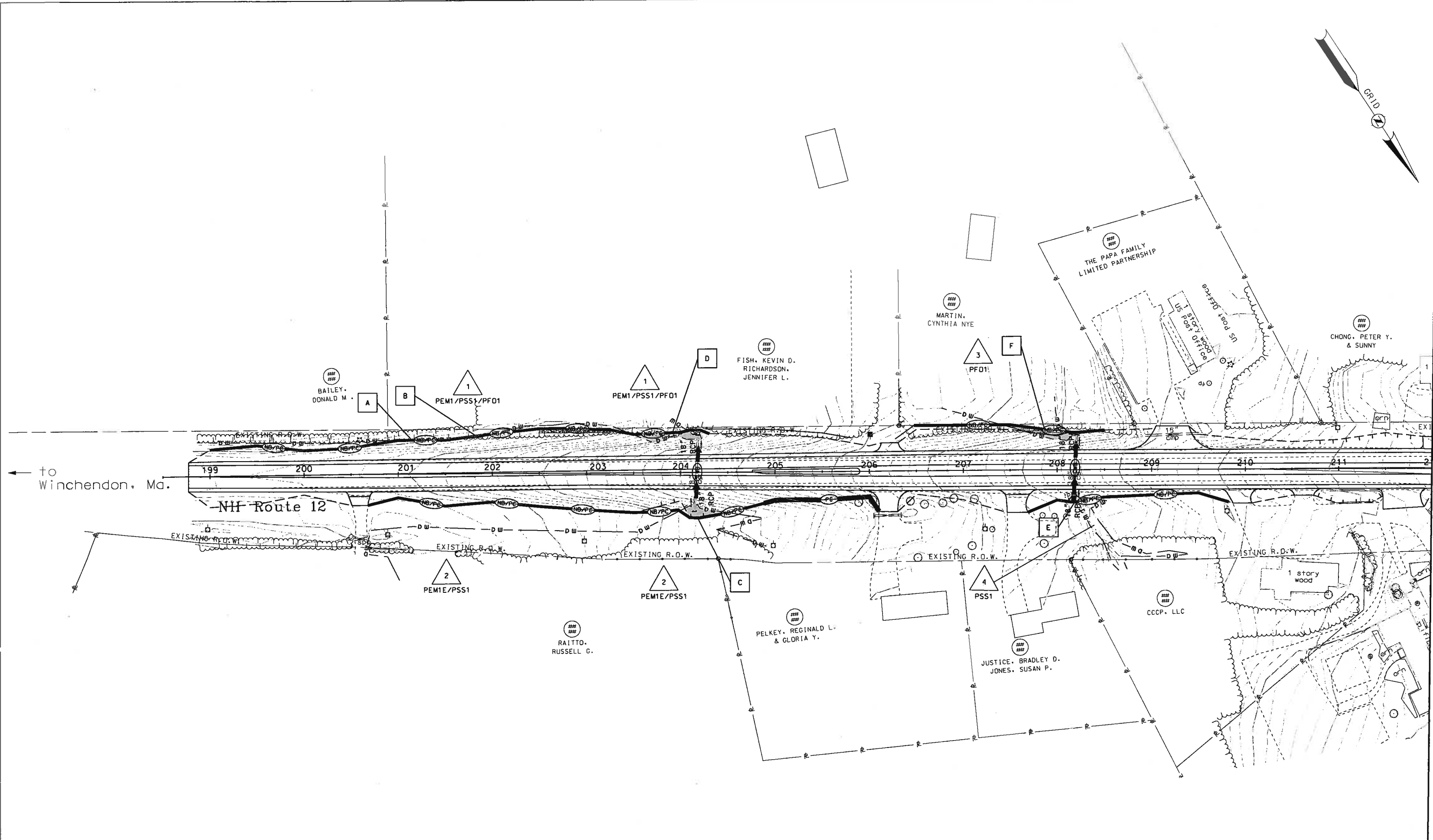
APPLICATION AREAS	DRY MULCH METHODS				HYDRAULICALLY APPLIED MULCHES <sup>2</sup>				ROLLED EROSION CONTROL BLANKETS <sup>3</sup>			
	HMT	WC	SG	CB	HM	SMM	BFM	FRM	SNSB	DNSB	DNSCB	DNCB
SLOPES <sup>1</sup>												
STEEPER THAN 2:1	NO	NO	YES	NO	NO	NO	NO	YES	NO	NO	NO	YES
2:1 SLOPE	YES <sup>1</sup>	YES <sup>1</sup>	YES	YES	NO	NO	YES	YES	NO	YES	YES	YES
3:1 SLOPE	YES	YES	YES	YES	NO	YES	YES	YES	YES	YES	YES	NO
4:1 SLOPE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO	NO
WINTER STABILIZATION	4T/AC	YES	YES	YES	NO	NO	YES	YES	YES	YES	YES	YES
CHANNELS												
LOW FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
HIGH FLOW CHANNELS	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES

ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE	ABBREV.	STABILIZATION MEASURE
HMT	HAY MULCH & TACK	HM	HYDRAULIC MULCH	SNSB	SINGLE NET STRAW BLANKET
WC	WOOD CHIPS	SMM	STABILIZED MULCH MATRIX	DNSB	DOUBLE NET STRAW BLANKET
SG	STUMP GRINDINGS	BFM	BONDED FIBER MATRIX	DNSCB	2 NET STRAW-COCONUT BLANKET
CB	COMPOST BLANKET	FRM	FIBER REINFORCED MEDIUM	DNCB	2 NET COCONUT BLANKET

- NOTES:
1. ALL SLOPE STABILIZATION OPTIONS ASSUME A SLOPE LENGTH ≤10 TIMES THE HORIZONTAL DISTANCE COMPONENT OF THE SLOPE, IN FEET.
2. PRODUCTS CONTAINING POLYACRYLAMIDE (PAM) SHALL NOT BE APPLIED DIRECTLY TO OR WITHIN 100 FEET OF ANY SURFACE WATER WITHOUT PRIOR WRITTEN APPROVAL FROM THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES.
3. ALL EROSION CONTROL BLANKETS SHALL BE MADE WITH WILDLIFE FRIENDLY BIODEGRADABLE NETTING.

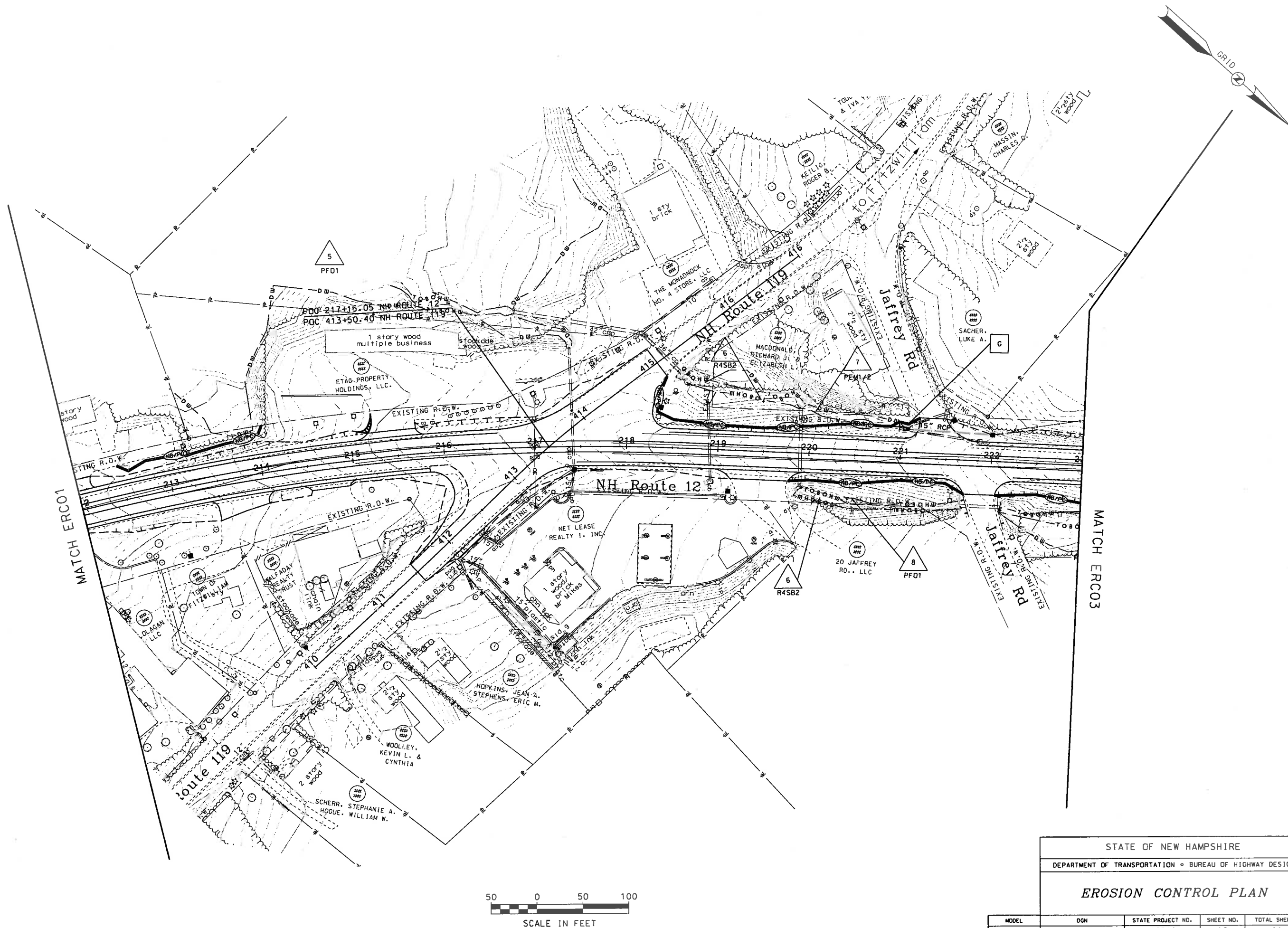
STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
<i>EROSION CONTROL STRATEGIES</i>				
REVISION DATE	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
12-21-2015	16211wetp10ans	16211	8	11

SOR PROCESSED	DATE			REVISIONS AFTER PROPOSAL		
	NEW DESIGN			STATION		
	SHEET CHECKED			DATE		
	AS BUILT DETAILS			NUMBER		
DJD	DATE	06/2018				
LMS	DATE	06/2018				
	DATE					



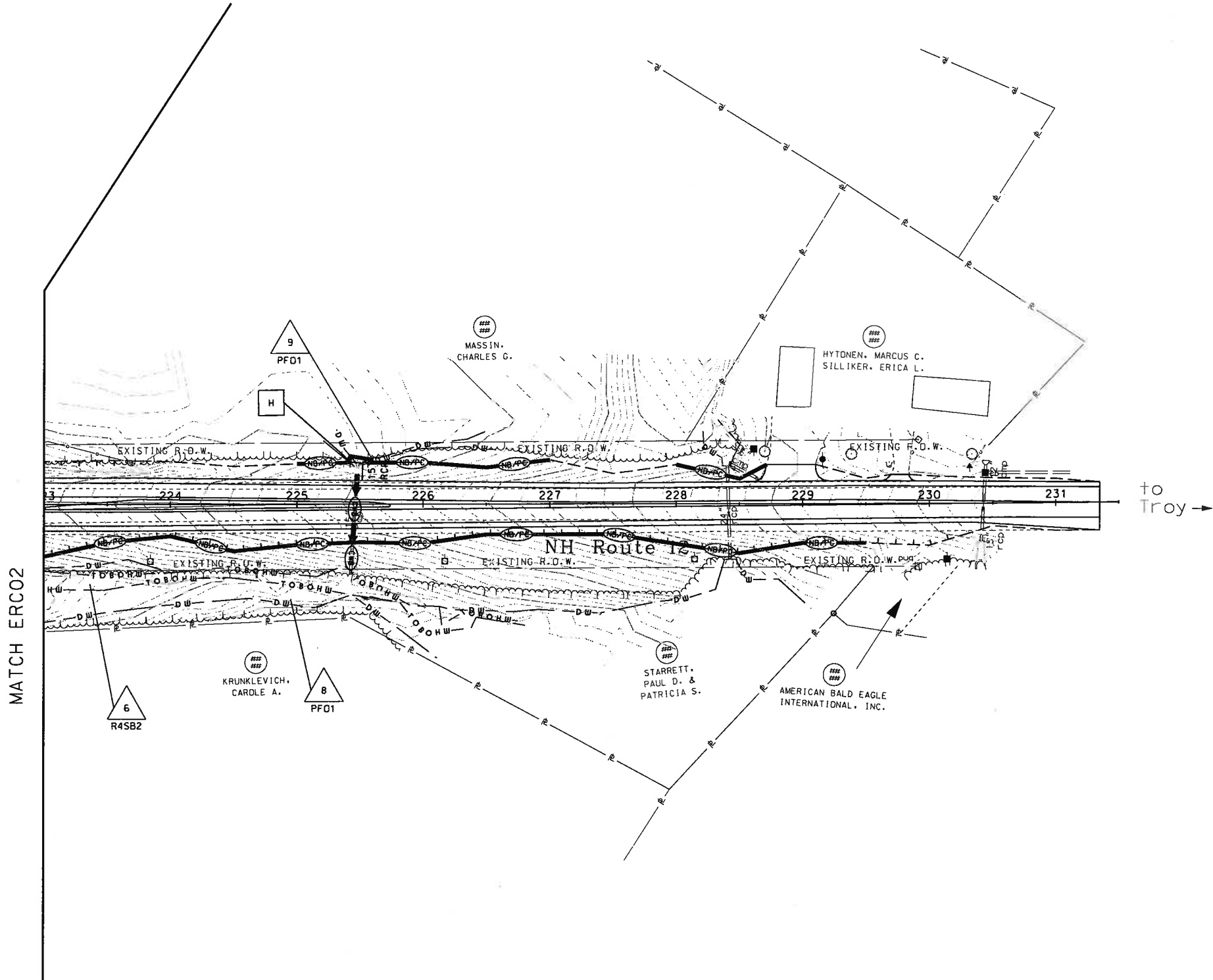
STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF ENVIRONMENT				
EROSION CONTROL PLAN				
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC01	16211wetplans	16211	9	11

SDR PROCESSED	REVISIONS AFTER PROPOSAL				
	NUMBER	DATE	STATION	STATION	DESCRIPTION
NEW DESIGN	DATE				
	DJD	DATE	DATE	DATE	DATE
SHEET CHECKED	DATE				
	LMS	DATE	DATE	DATE	DATE
AS BUILT DETAILS					
DATE					



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
EROSION CONTROL PLAN				
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC02	16211wetplans	16211	10	11

SDR PROCESSED		DATE		REVISIONS AFTER PROPOSAL	
NEW DESIGN	DJD	DATE	06/2018	STATION	DESCRIPTION
SHEET CHECKED	LWS	DATE	06/2018	DATE	
AS BUILT DETAILS		DATE		NUMBER	



STATE OF NEW HAMPSHIRE				
DEPARTMENT OF TRANSPORTATION • BUREAU OF HIGHWAY DESIGN				
<b>EROSION CONTROL PLAN</b>				
MODEL	DGN	STATE PROJECT NO.	SHEET NO.	TOTAL SHEETS
ERC03	16211wetplans	16211	11	11